

Using GIS Tools for Planning and Monitoring LRAM Projects

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GIS is our friend!

- **LRAM Site Identification**
 - **Information storage**
 - **Overlay analysis**
 - **Raster-based operations**
 - **Change detection**
- **Individual LRAM Projects**
 - **Project development**
 - **Post-project management**

SITE IDENTIFICATION

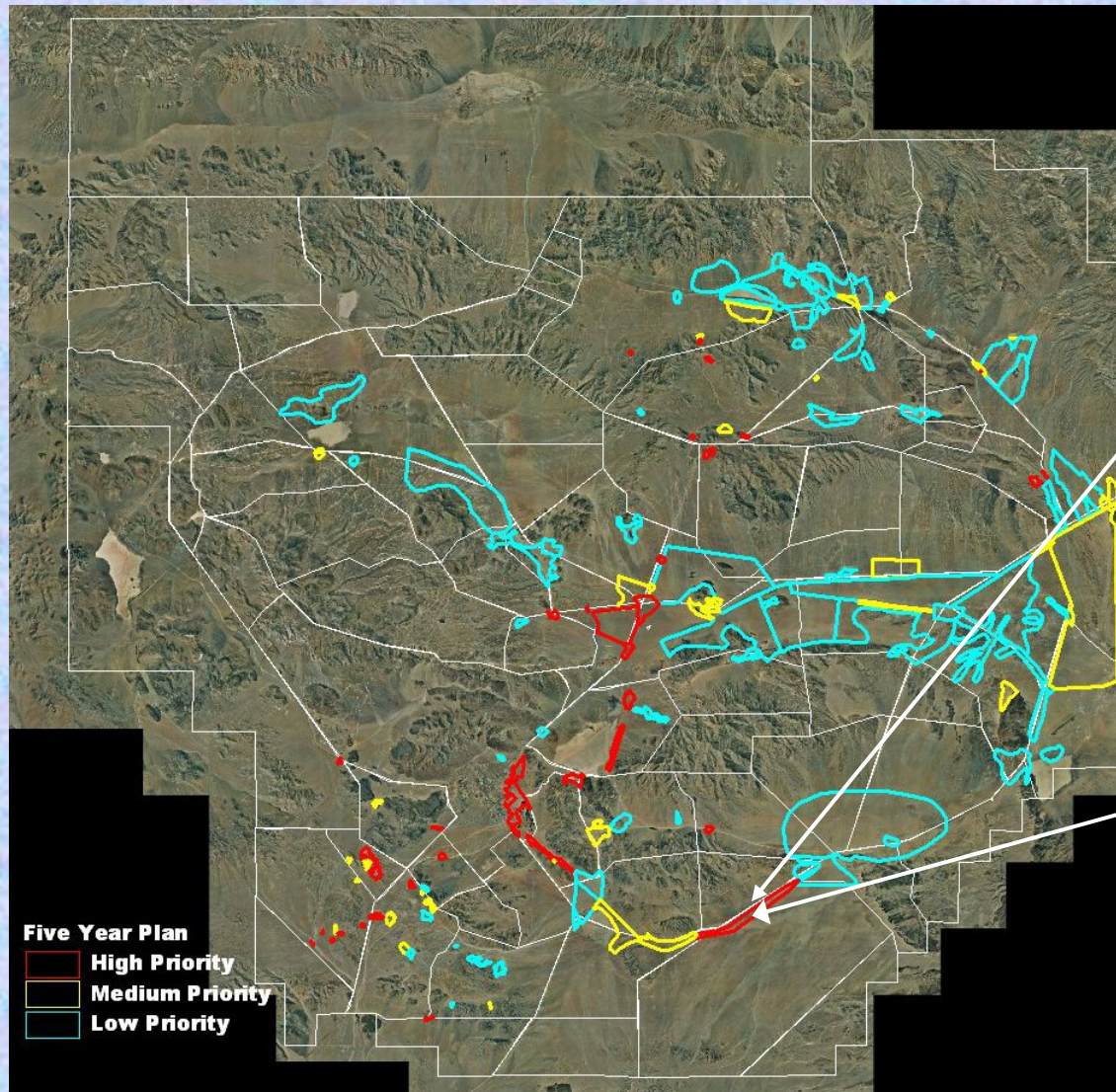
Sometimes it seems like everything on the NTC is a potential site!

But that's nearly 643,000 acres - we've got to narrow down our search somehow.

Problem: How do we identify specific sites?

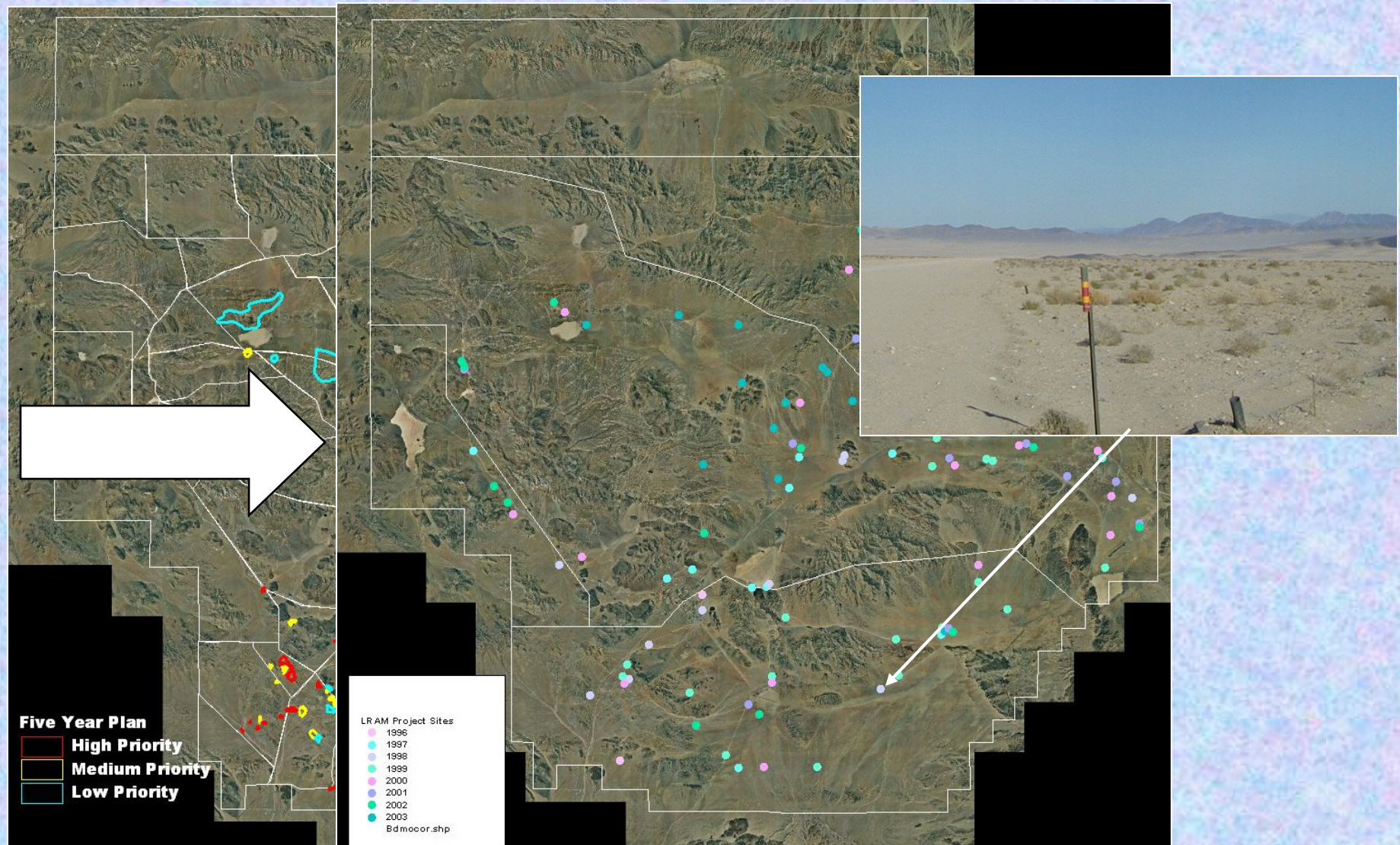


I. Information storage and display

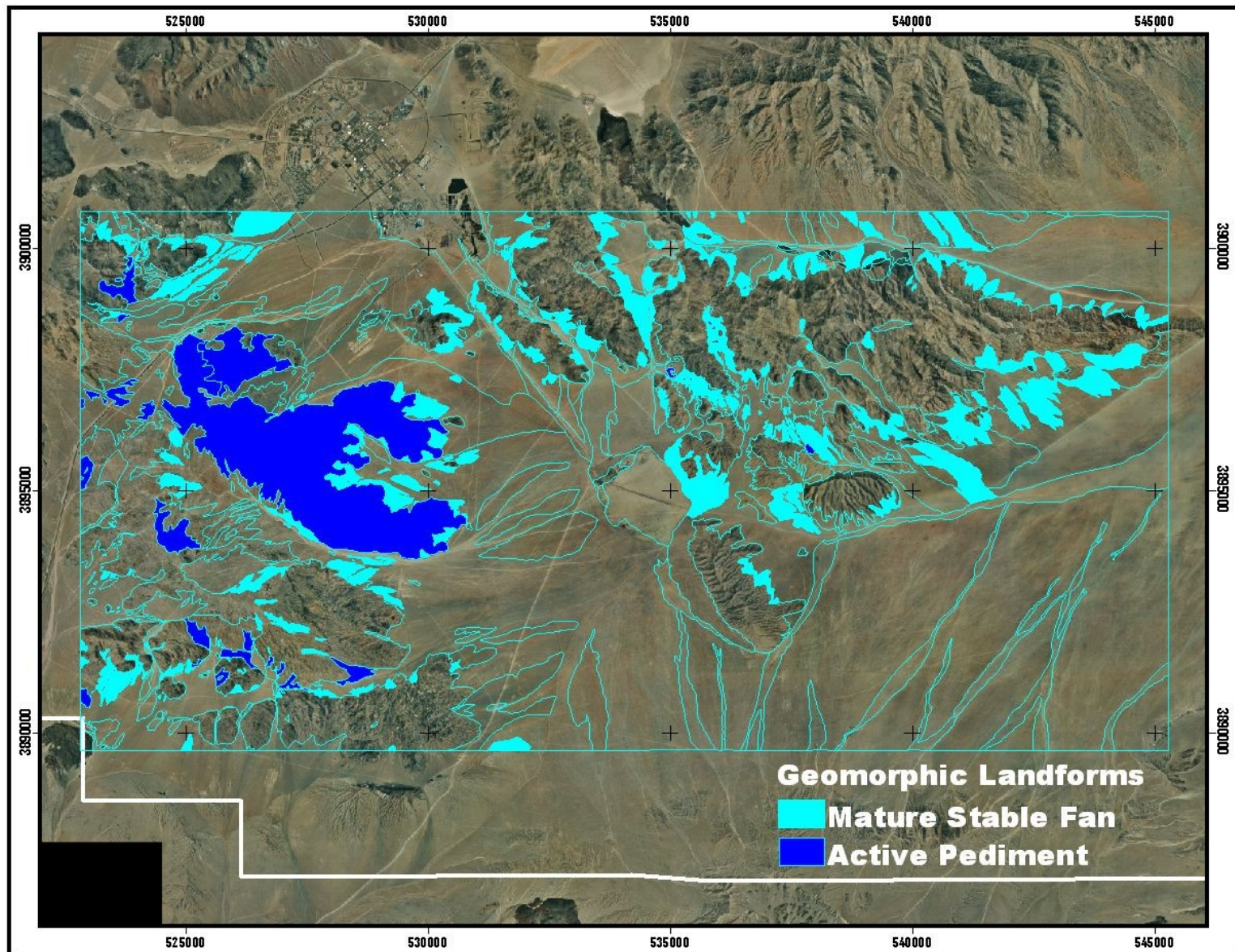


Site #45
Southern Corridor
Training Area F2
Size: 176 ha
NU 4041 9470
Priority: High

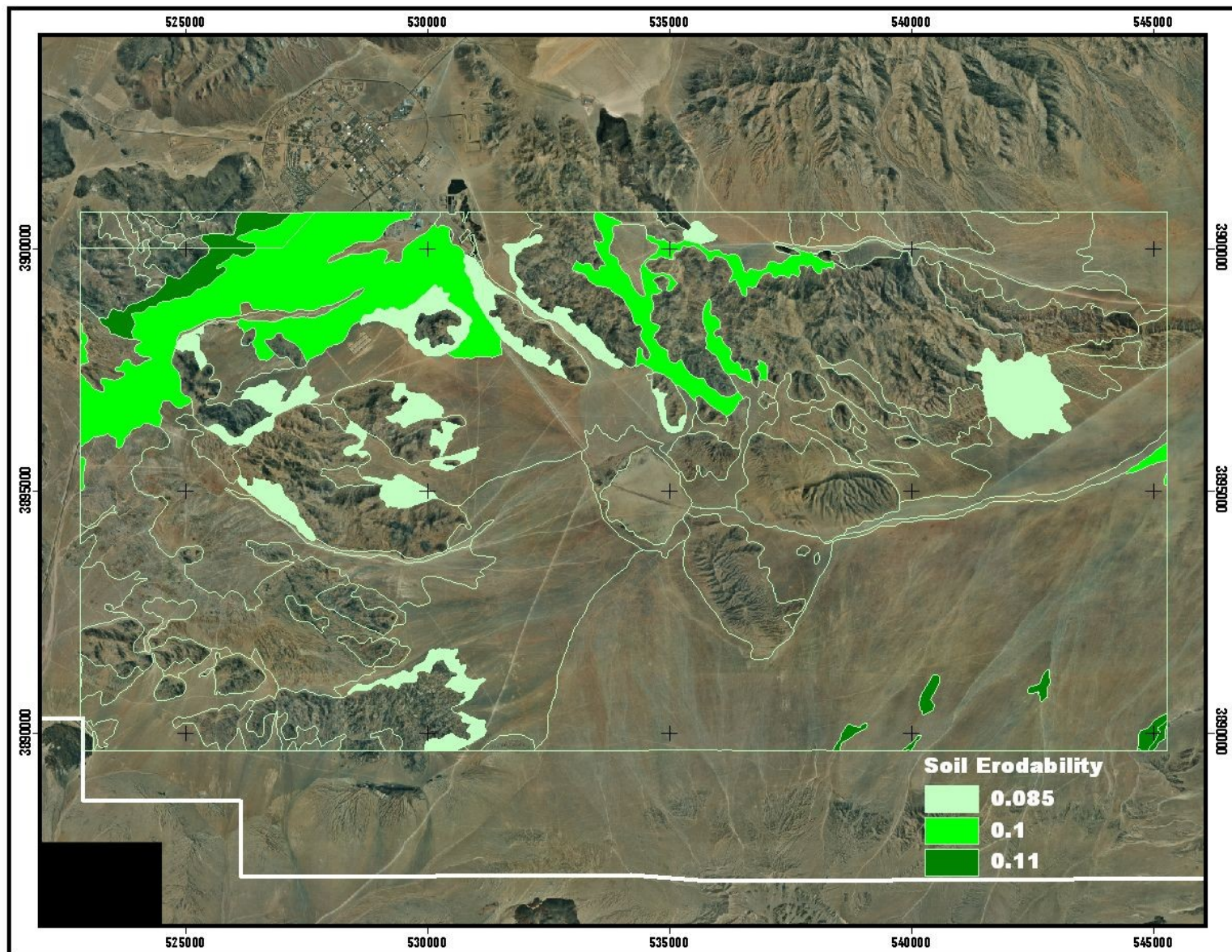
I. Information storage and display



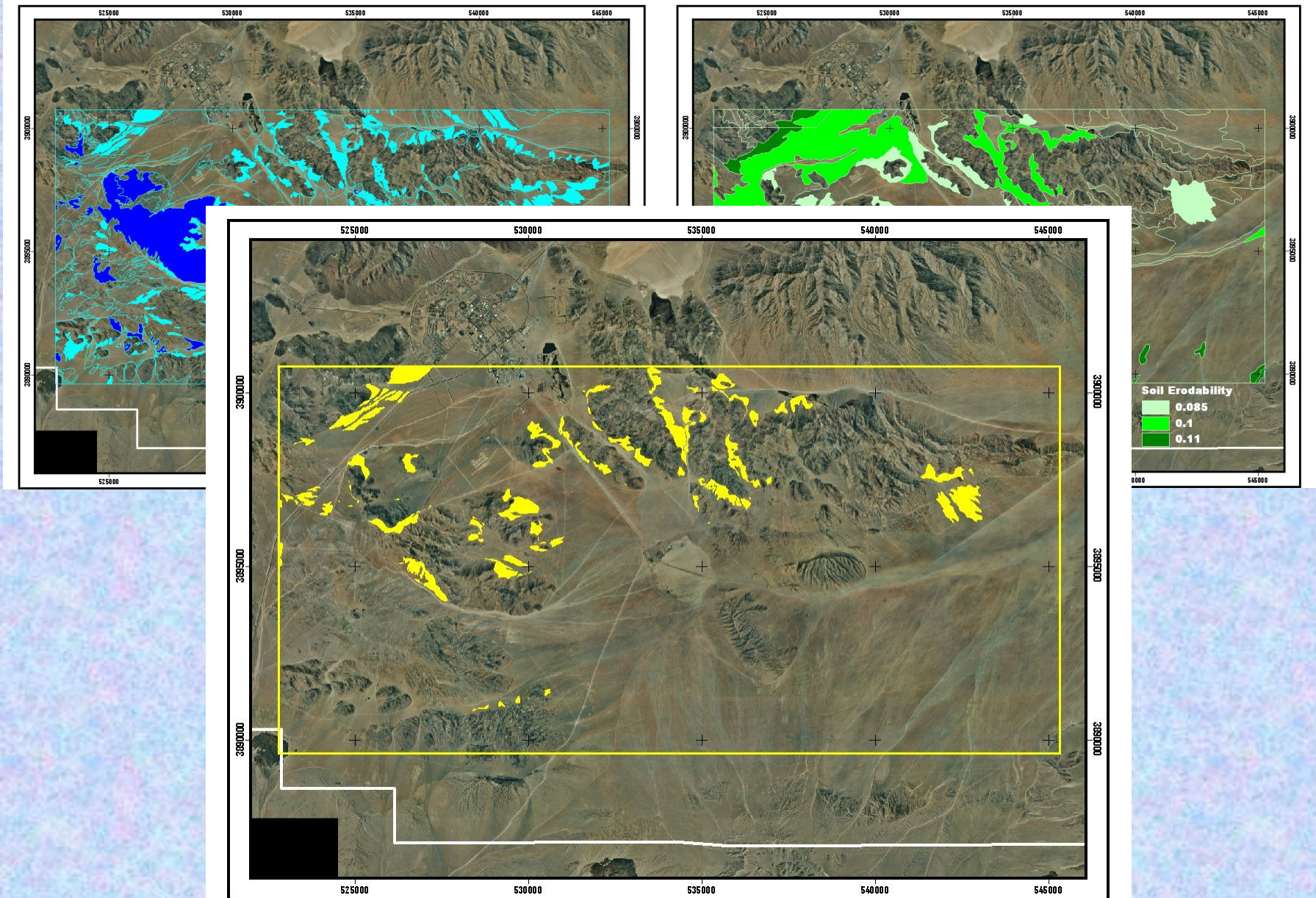
II. Overlay operations



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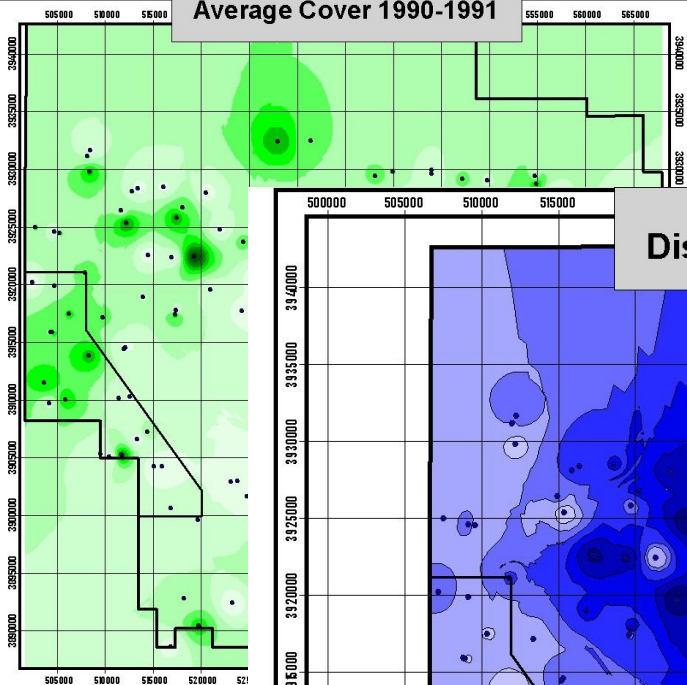


II. Overlay operations

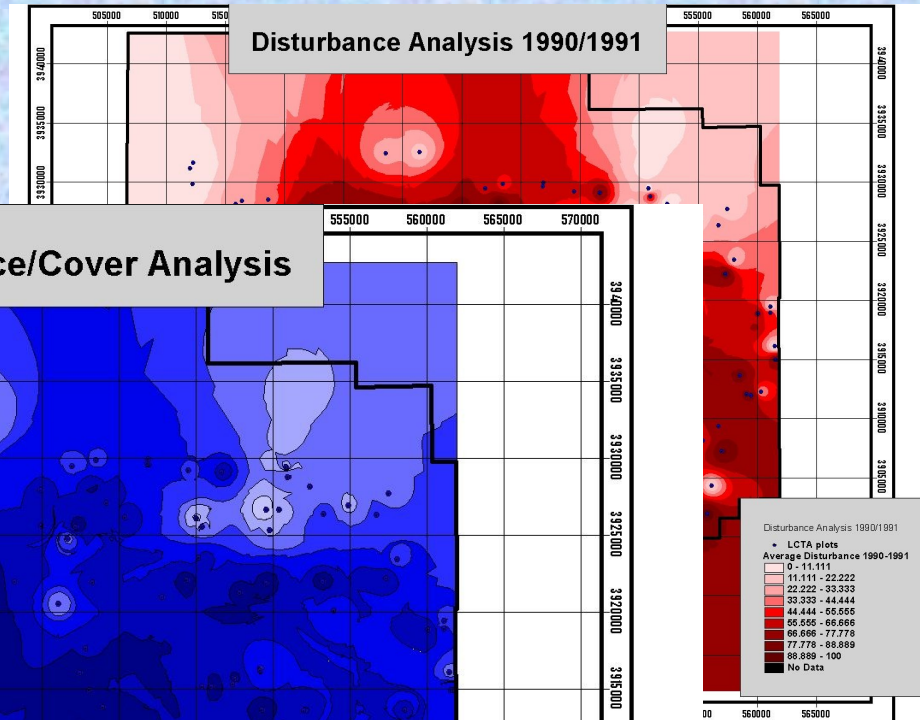


III. Raster-based operations

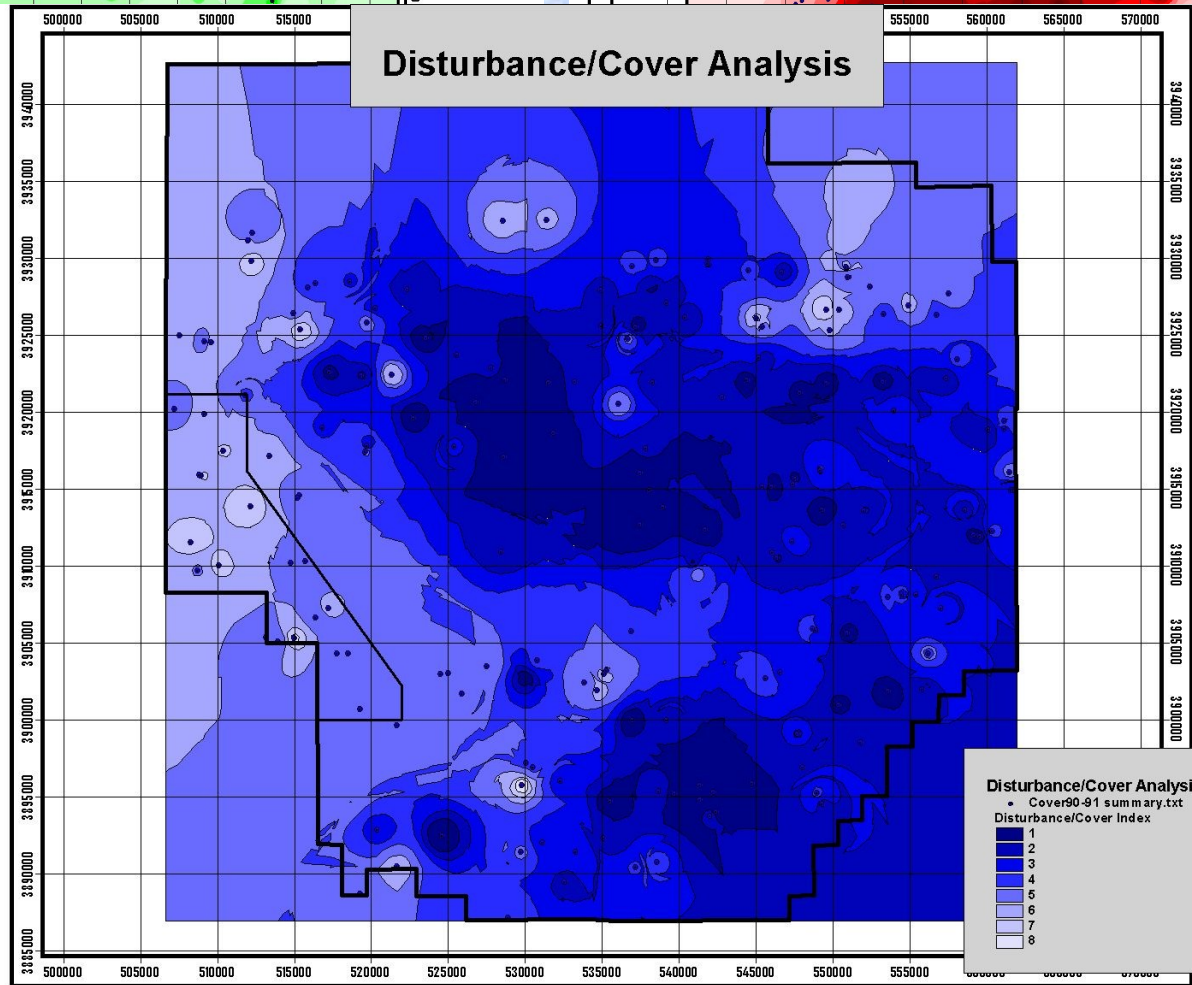
Average Cover 1990-1991



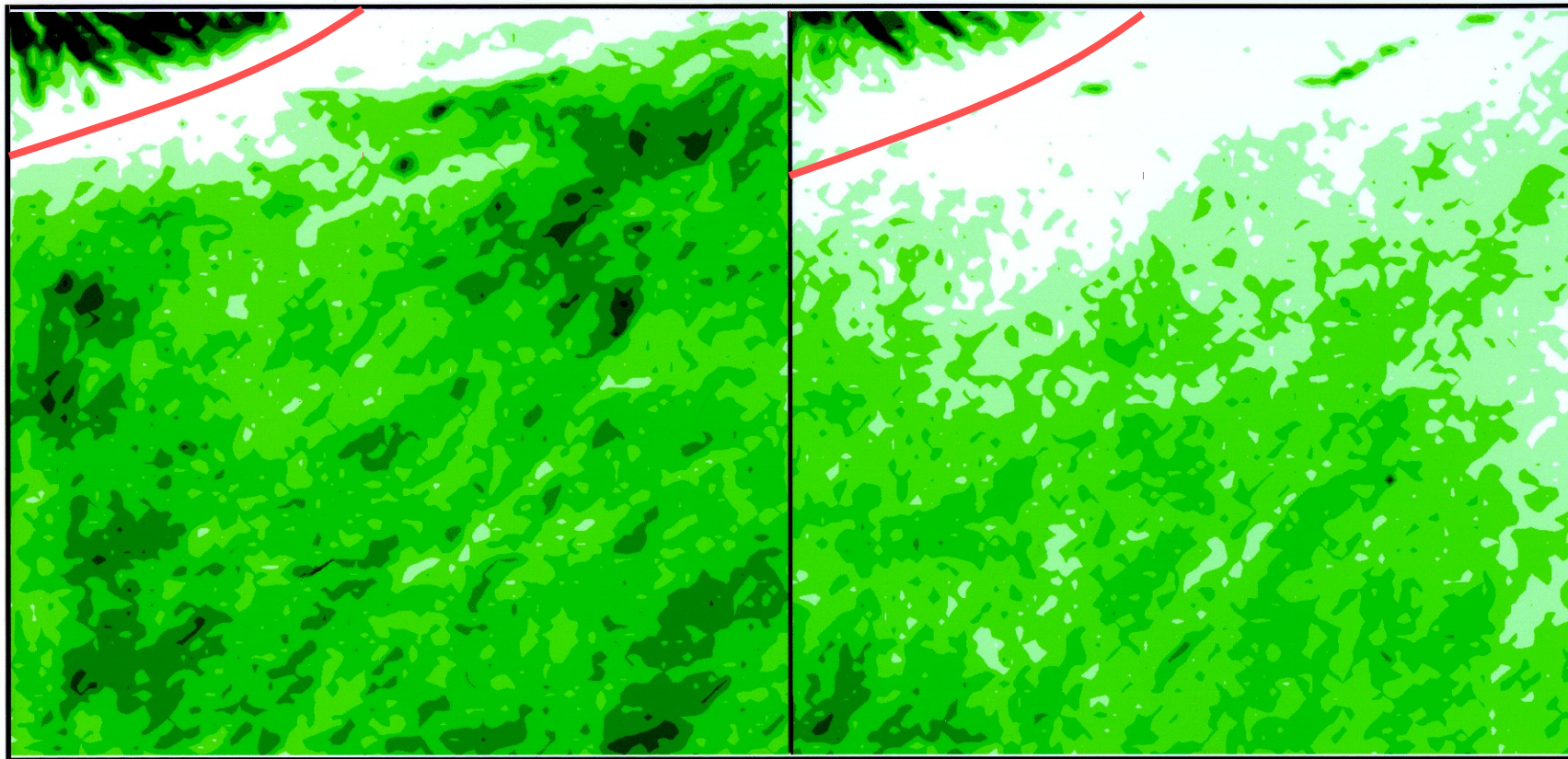
Disturbance Analysis 1990/1991



Disturbance/Cover Analysis



IV. Change detection



1997

1999

This is the place!



GIS in LRAM Project Planning

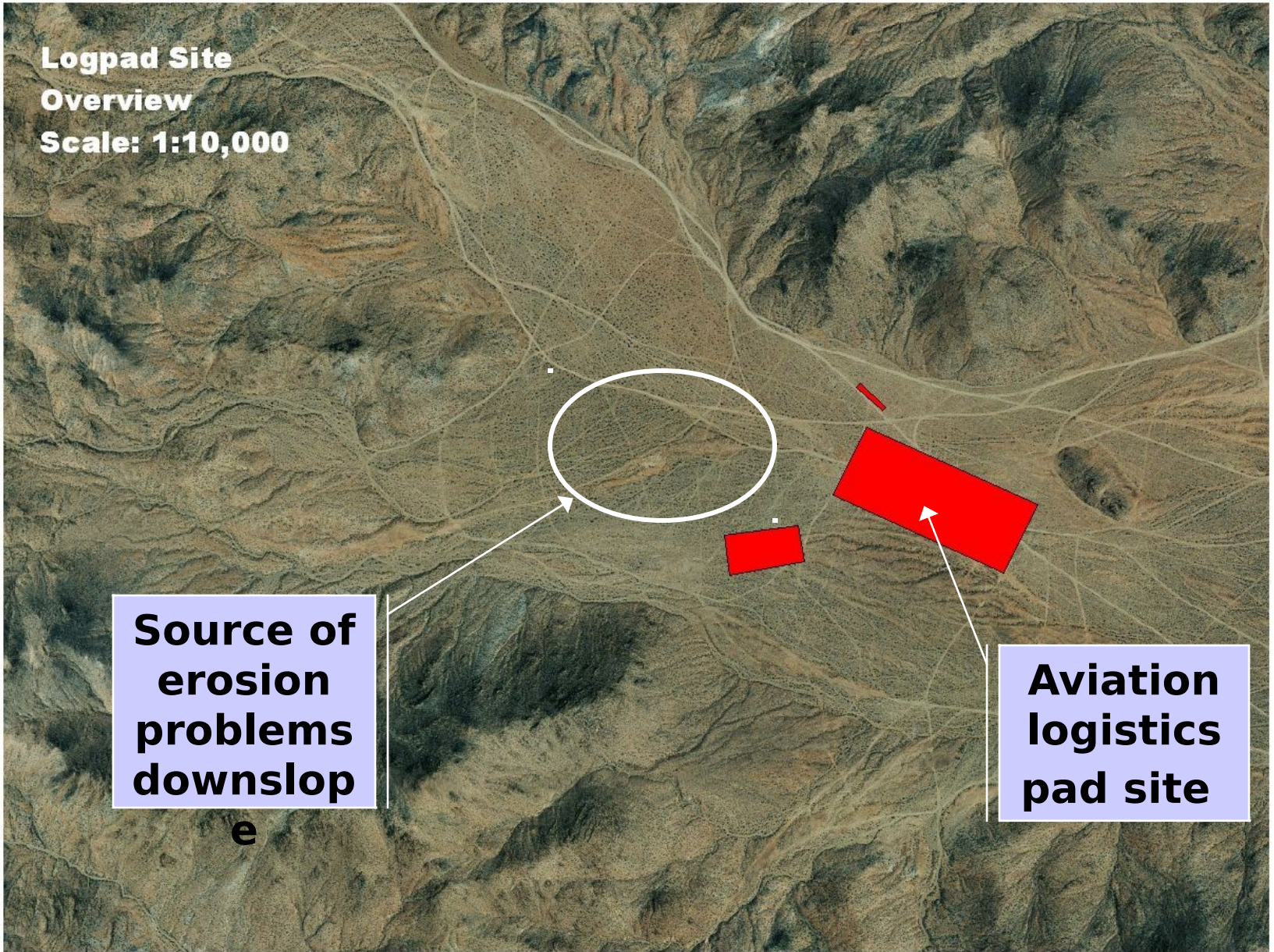
STEPS:

- 1. Initial site visit - map major features, critical areas, and perimeter**
- 2. Create preliminary aerial overview in ArcView using field data along with relevant core layers (soils, contours, etc.)**
- 3. Follow-up site visit - map specific locations of project components using aerial overview as a guide**
- 4. Create final project design diagram**

**Logpad Site
Overview
Scale: 1:10,000**

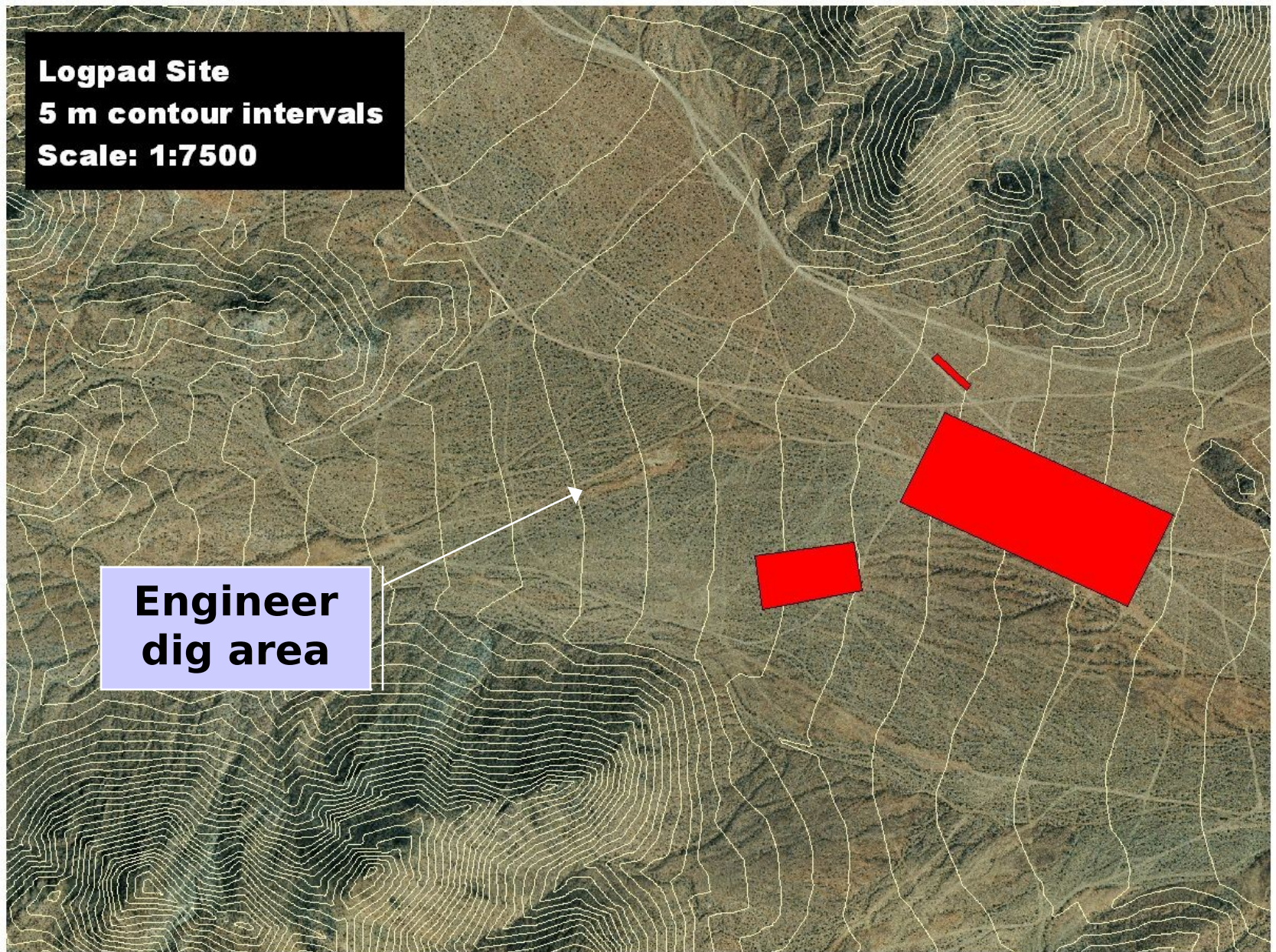
**Source of
erosion
problems
downslope**

**Aviation
logistics
pad site**

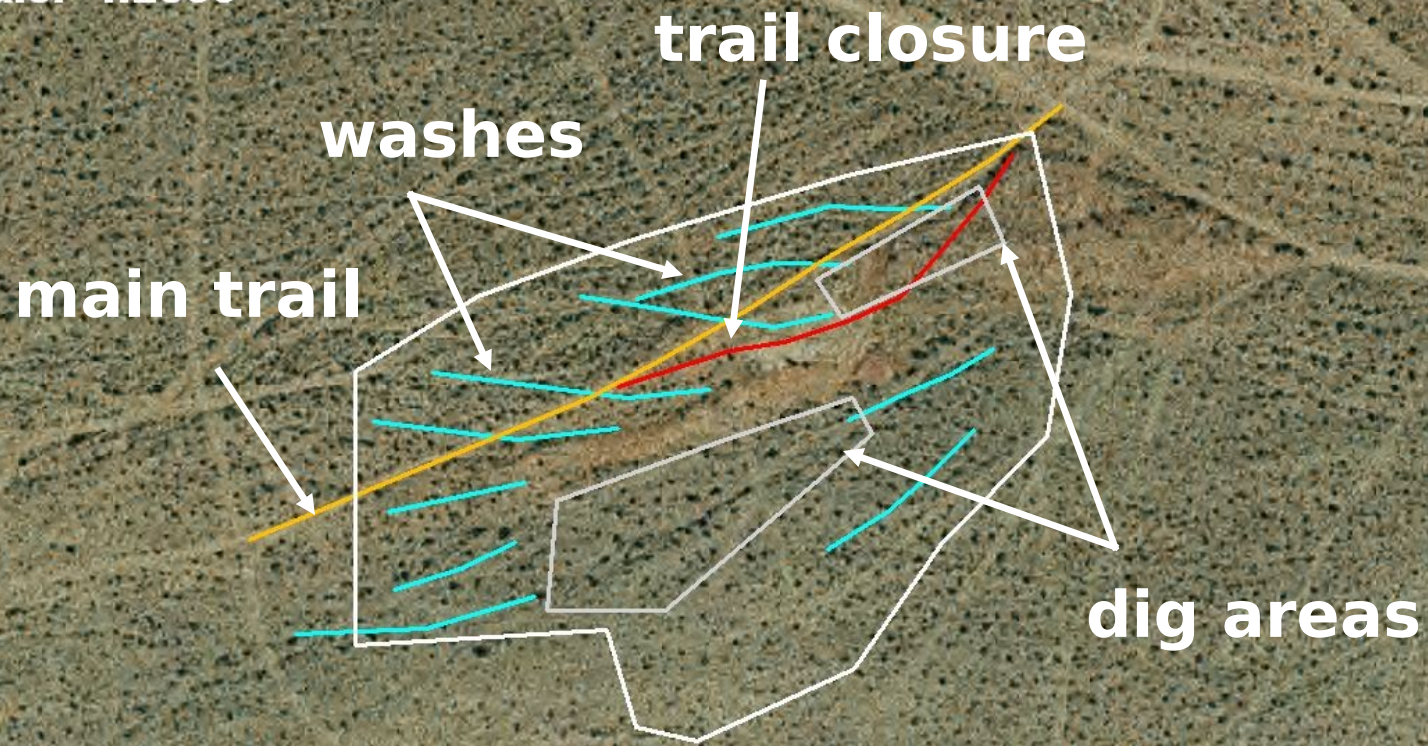


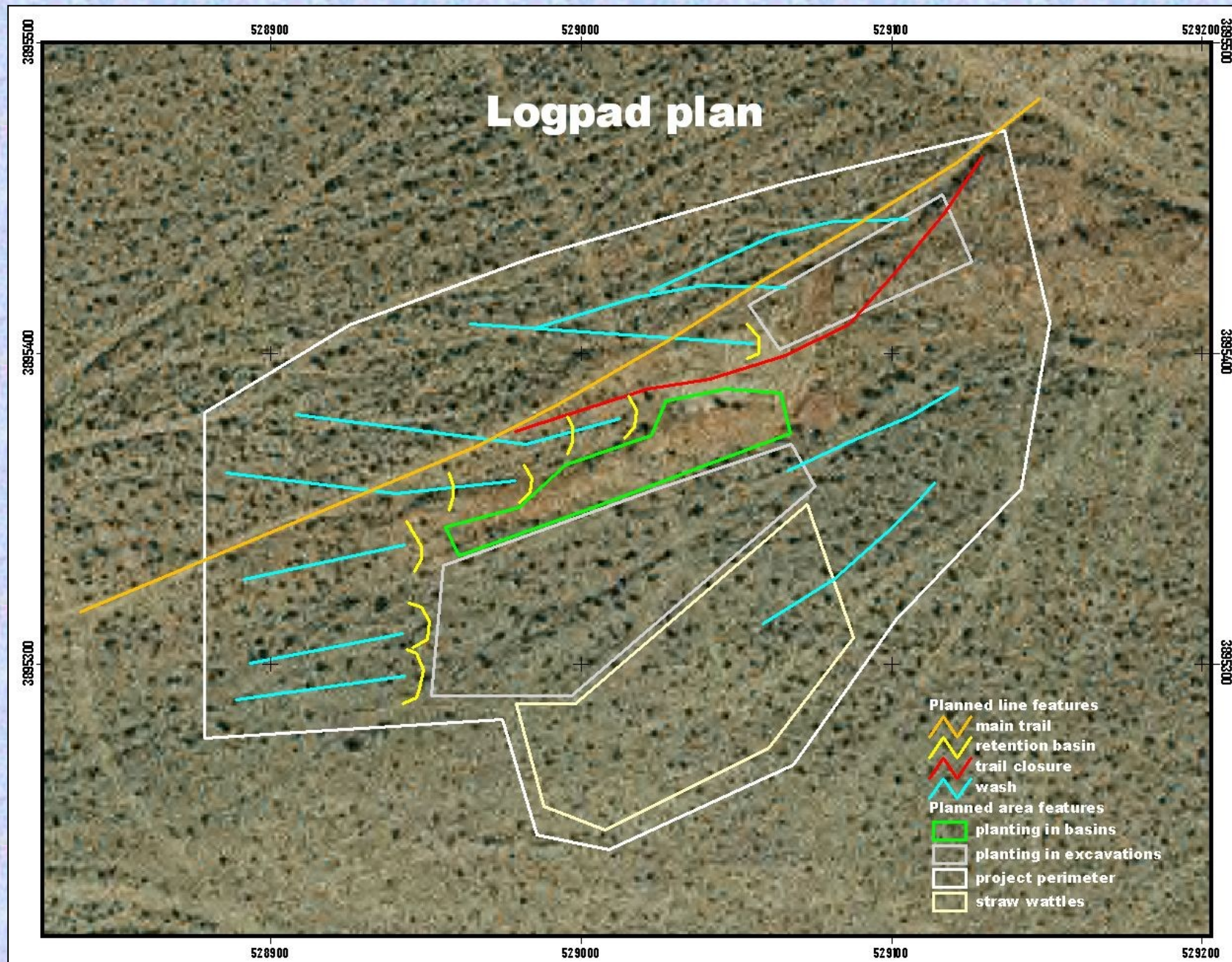
Logpad Site
5 m contour intervals
Scale: 1:7500

**Engineer
dig area**



Logpad Site
Pre-project Features
Scale: 1:2500



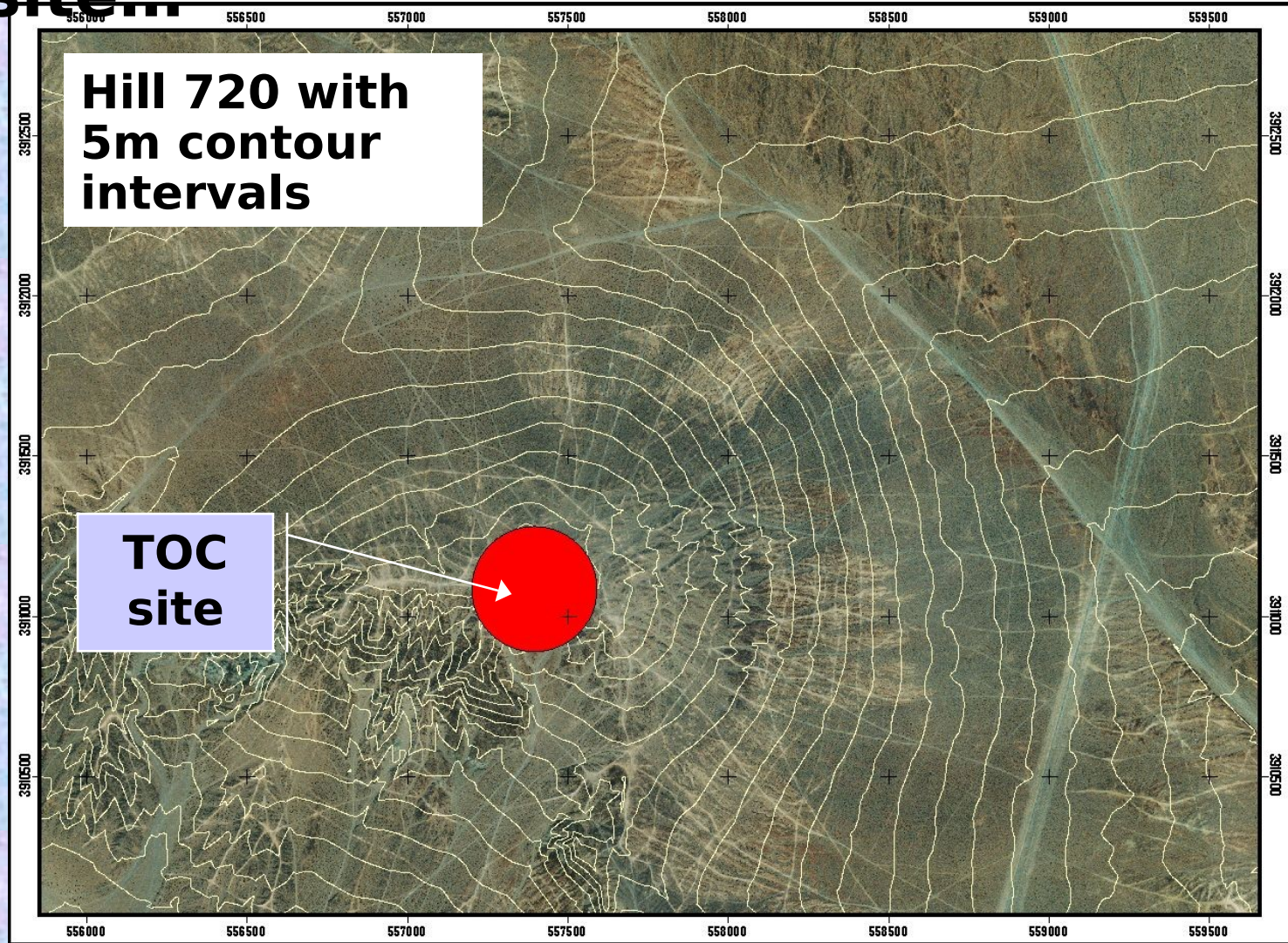


GIS in LRAM Project Planning

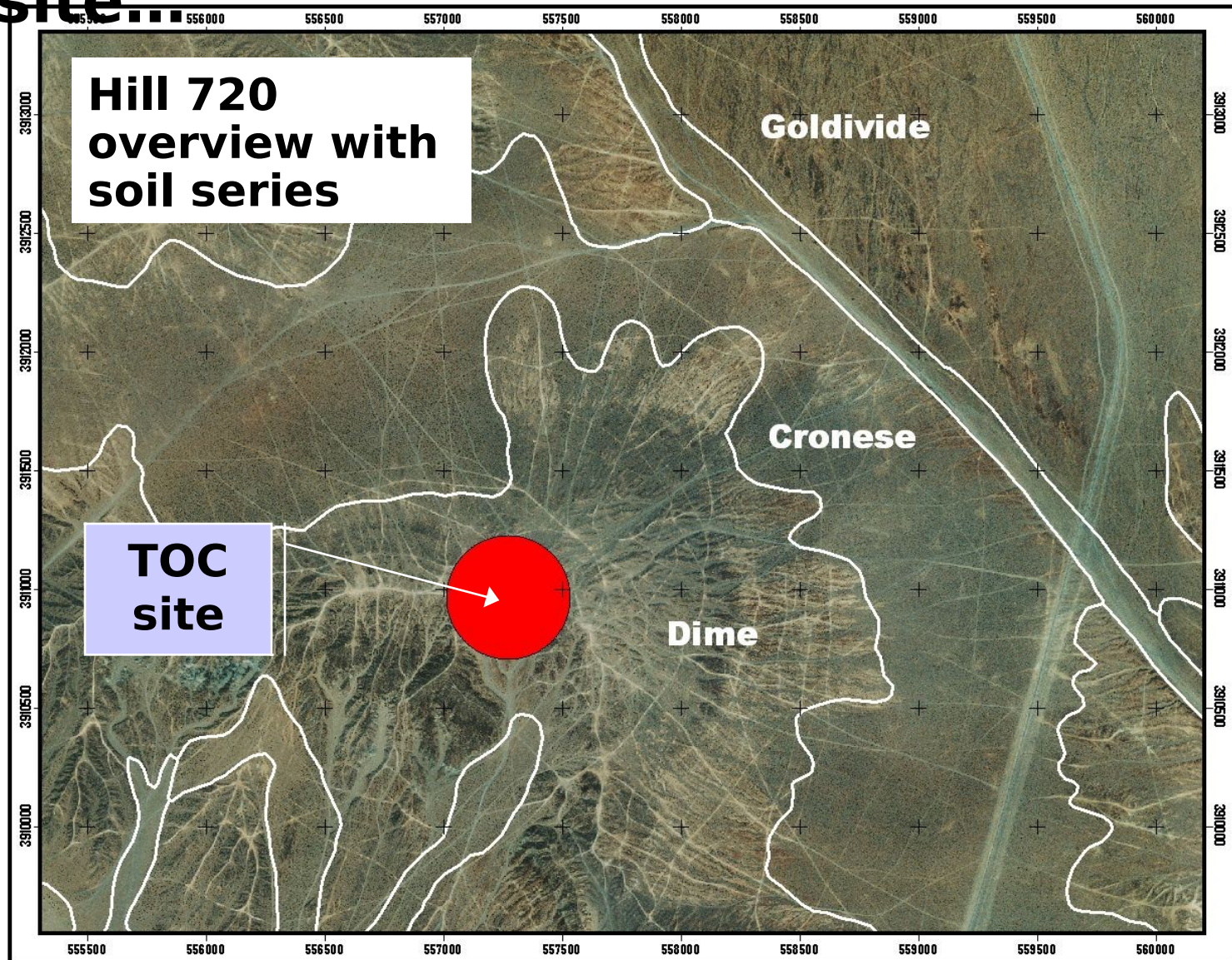
BENEFITS

- **Provides the project planner with a better overall understanding of the site**
- **Helps in determining areas, lengths, numbers needed for contracting purposes**
- **Identifies project site boundaries for endangered species and archeology surveys**
- **Functions as a template for the contractor or in-house field crew**

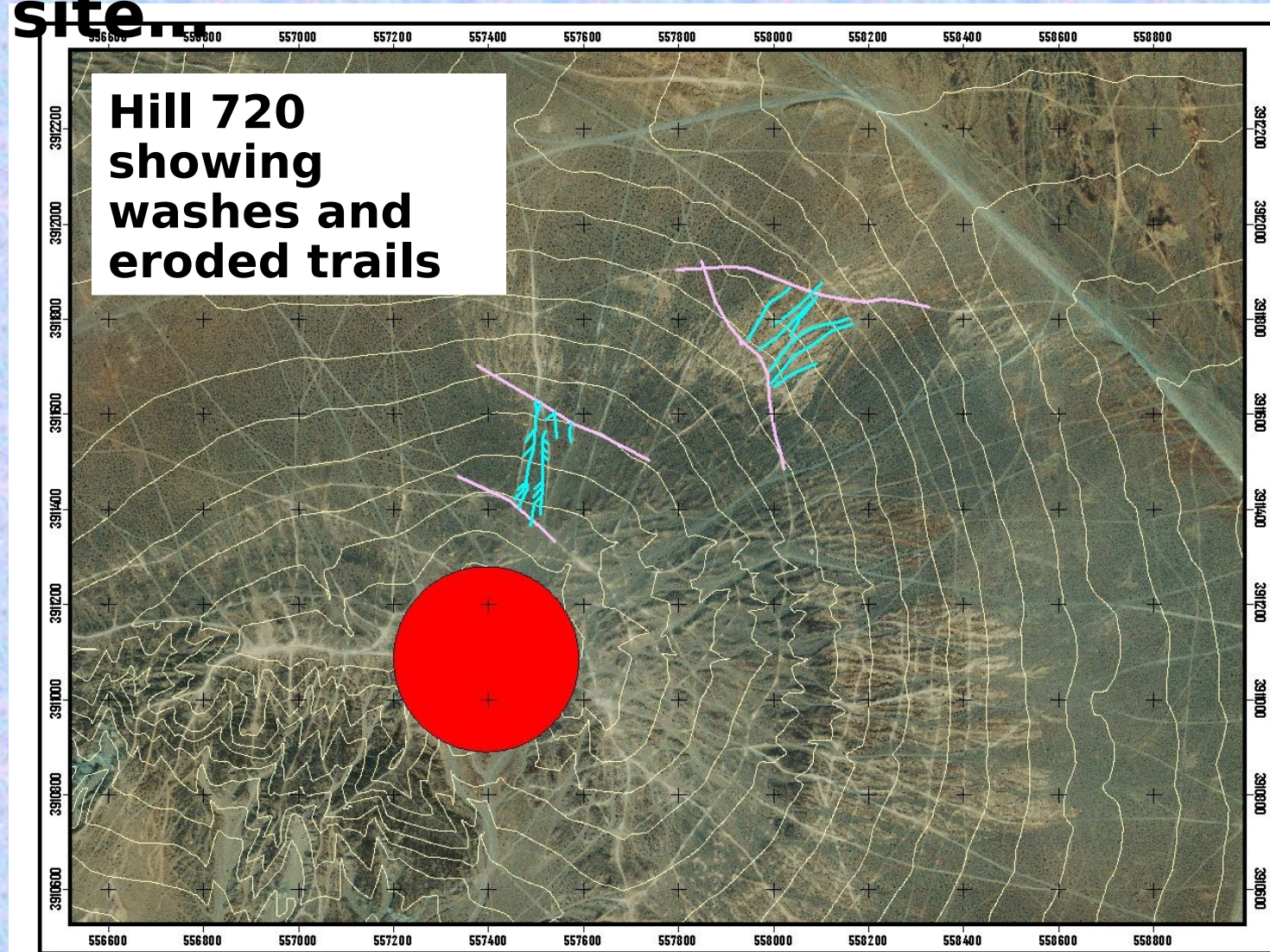
Provides the project planner with a better overall understanding of the site...



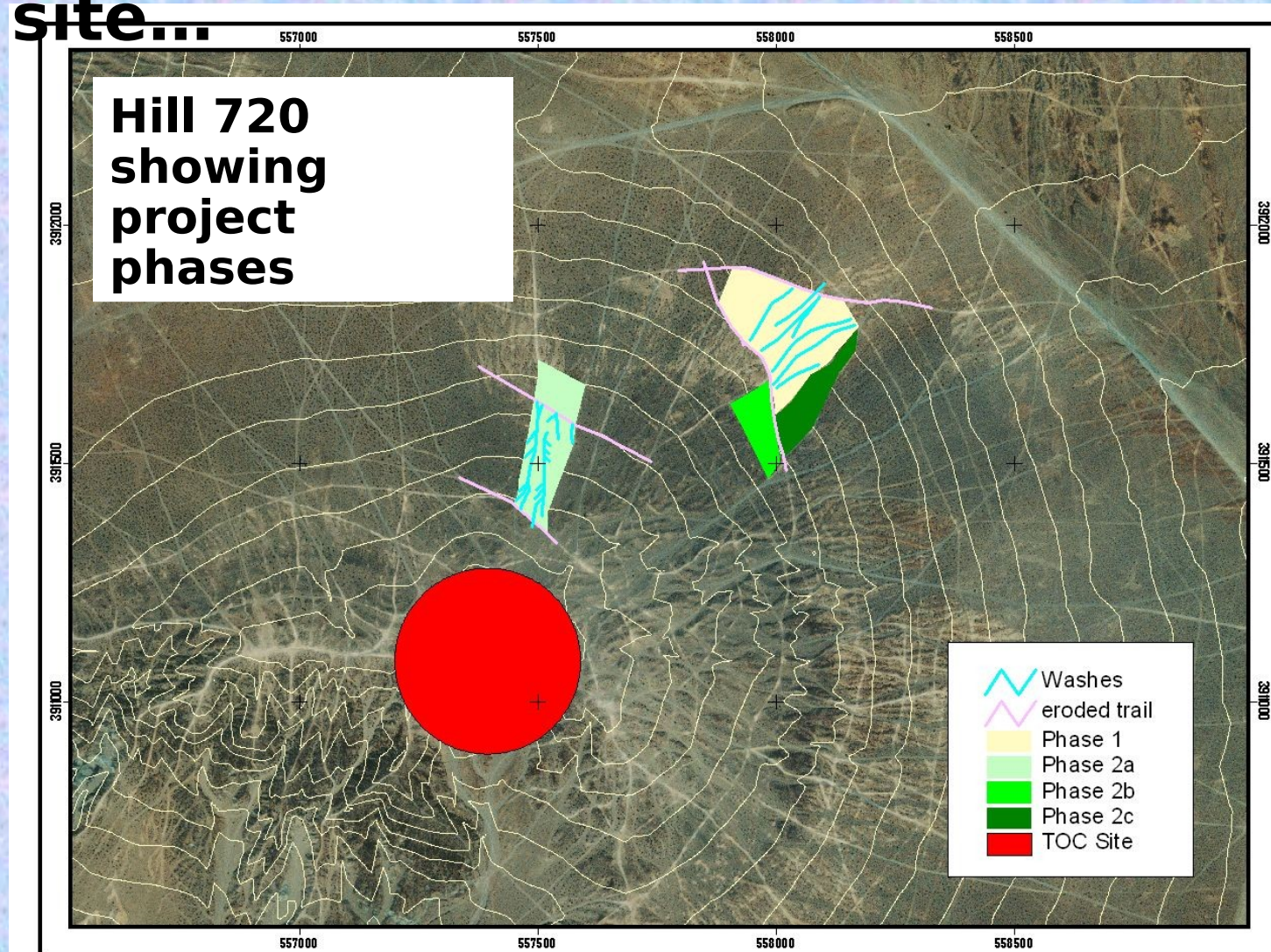
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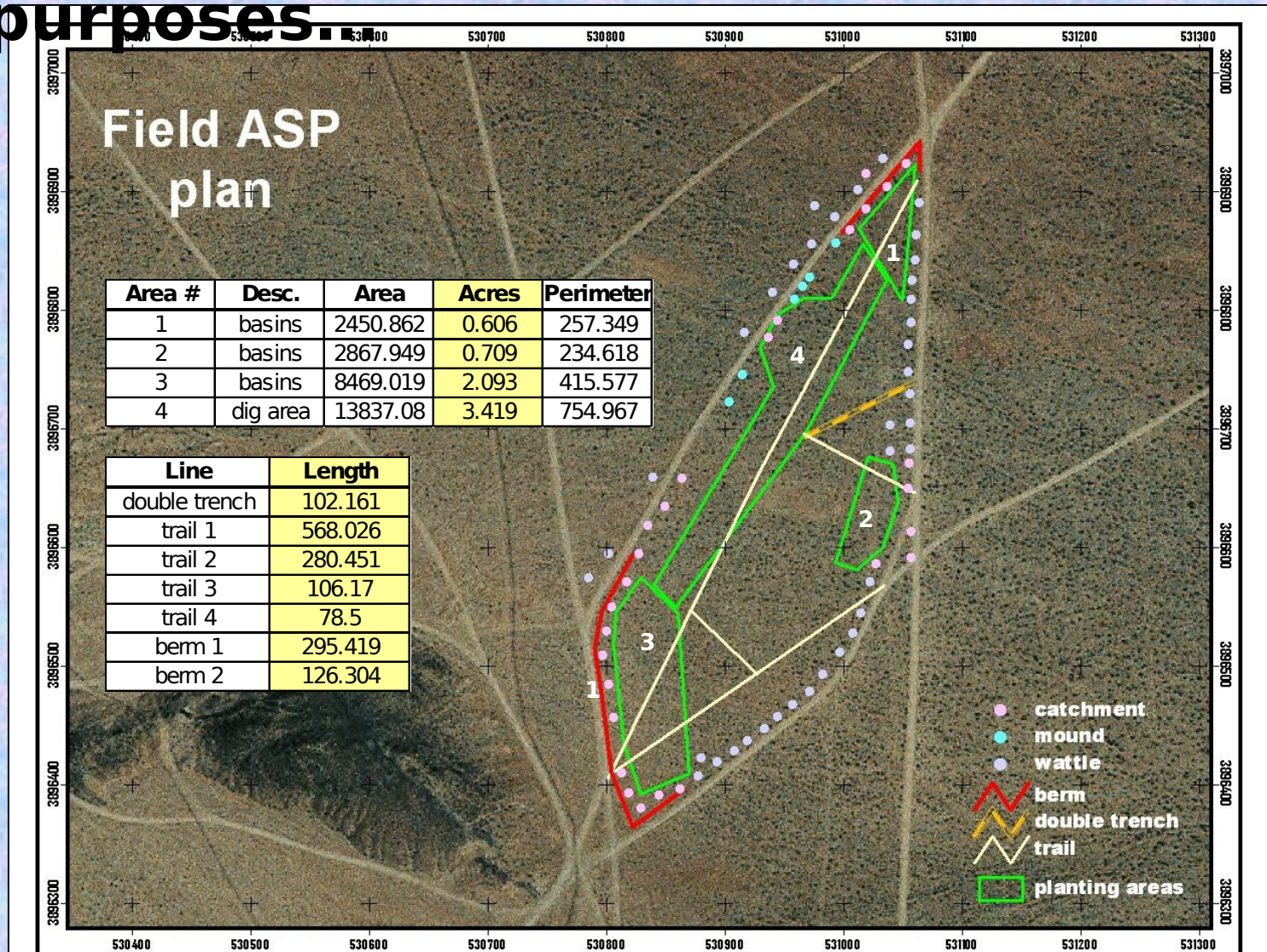
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**Identifies project site
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Functions as a template for the contractor or in-house field crew...

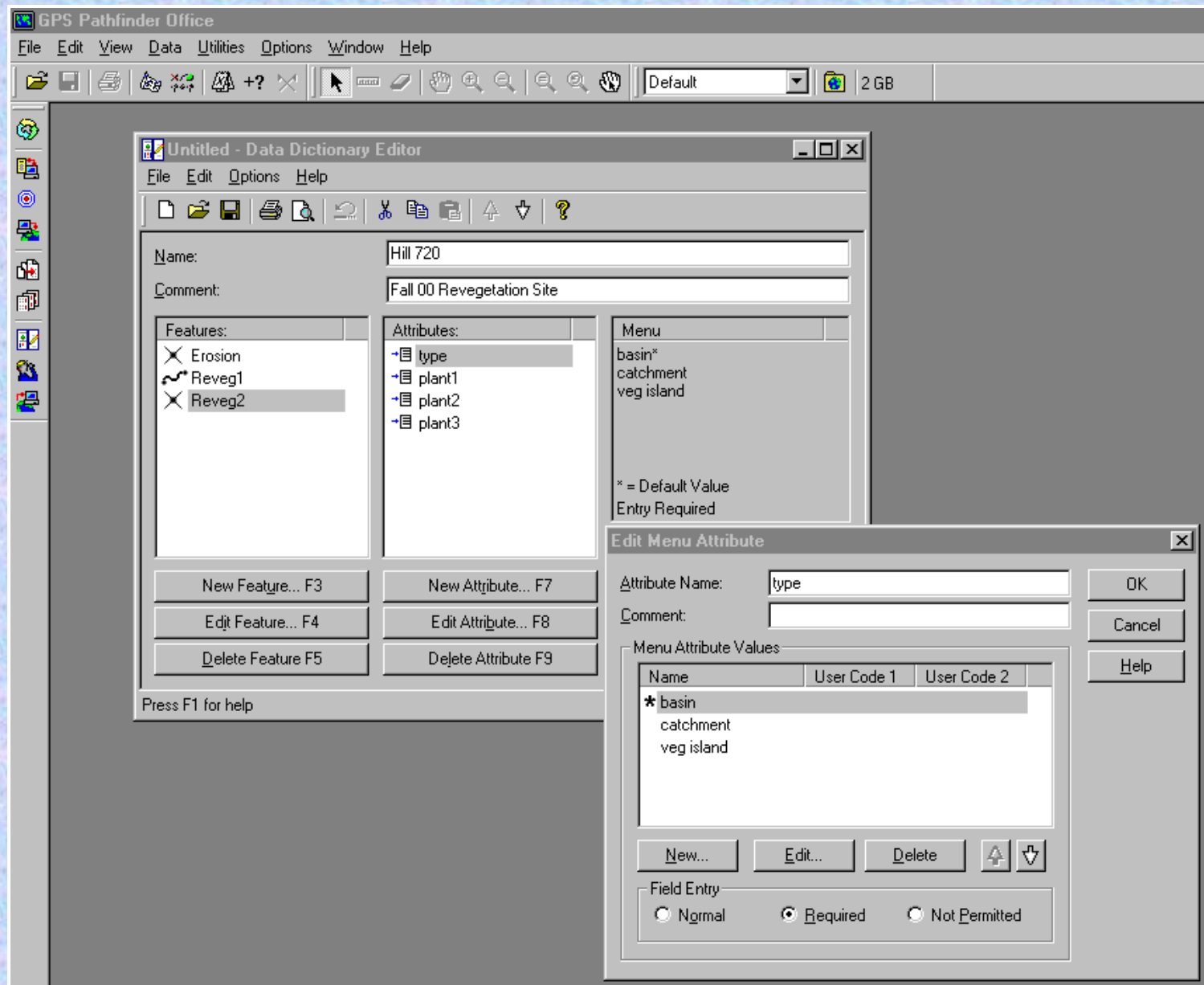


GIS in LRAM Project Monitoring

STEPS:

- 1. Construct data dictionary based on project components**
- 2. Map structures and plantings**
- 3. Create final implementation diagram as a permanent record**
- 4. Design data collection format based on final project design components**
- 5. Locate transects for long-term monitoring**

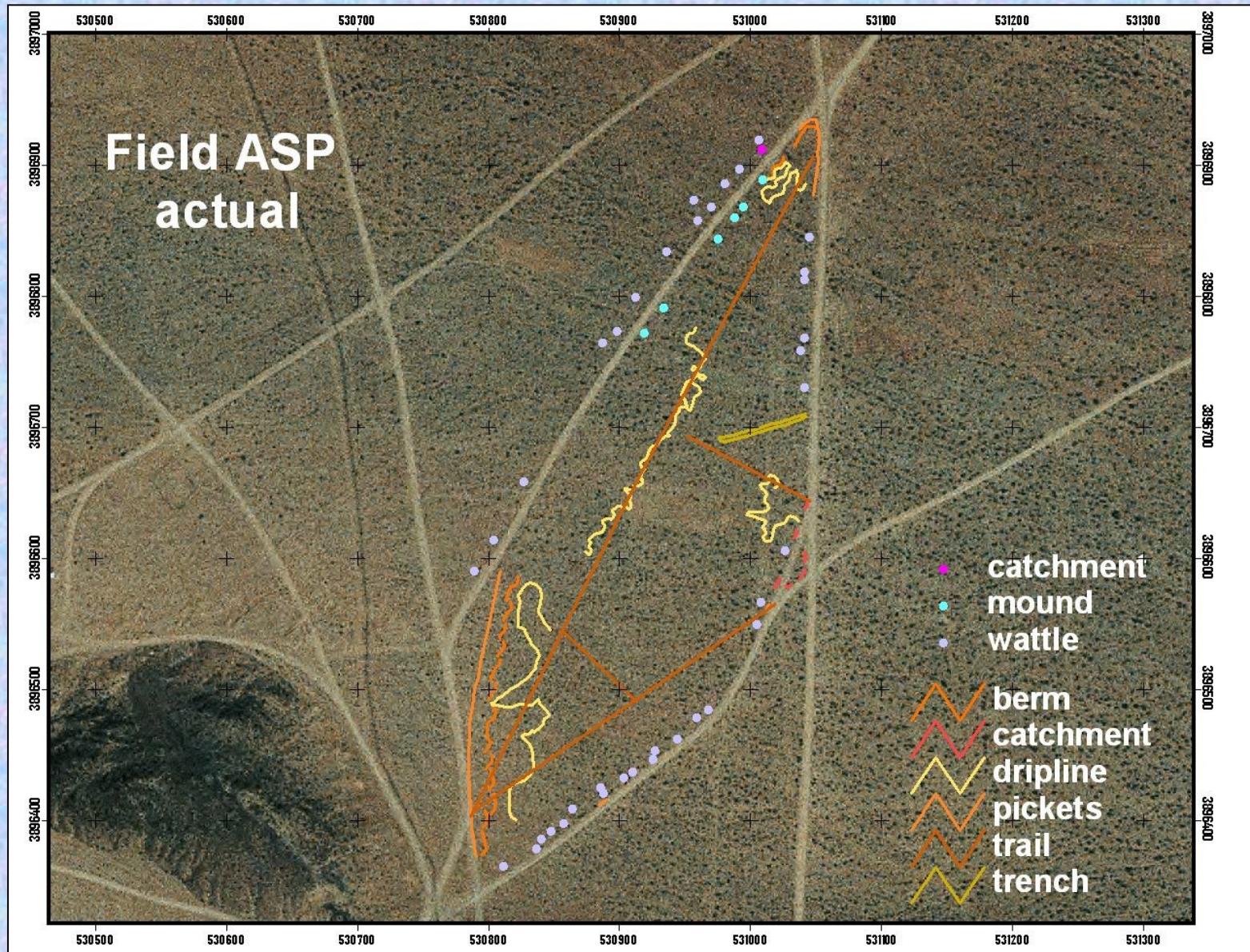
Construct data dictionary



Map structures and plantings



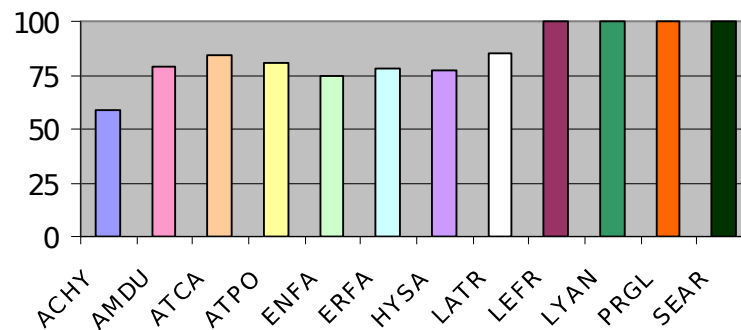
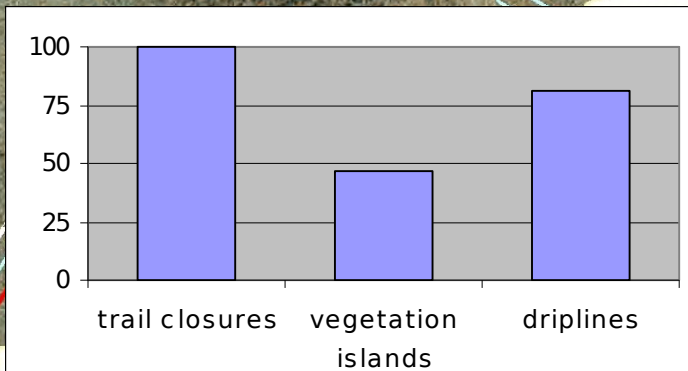
Create final site diagram



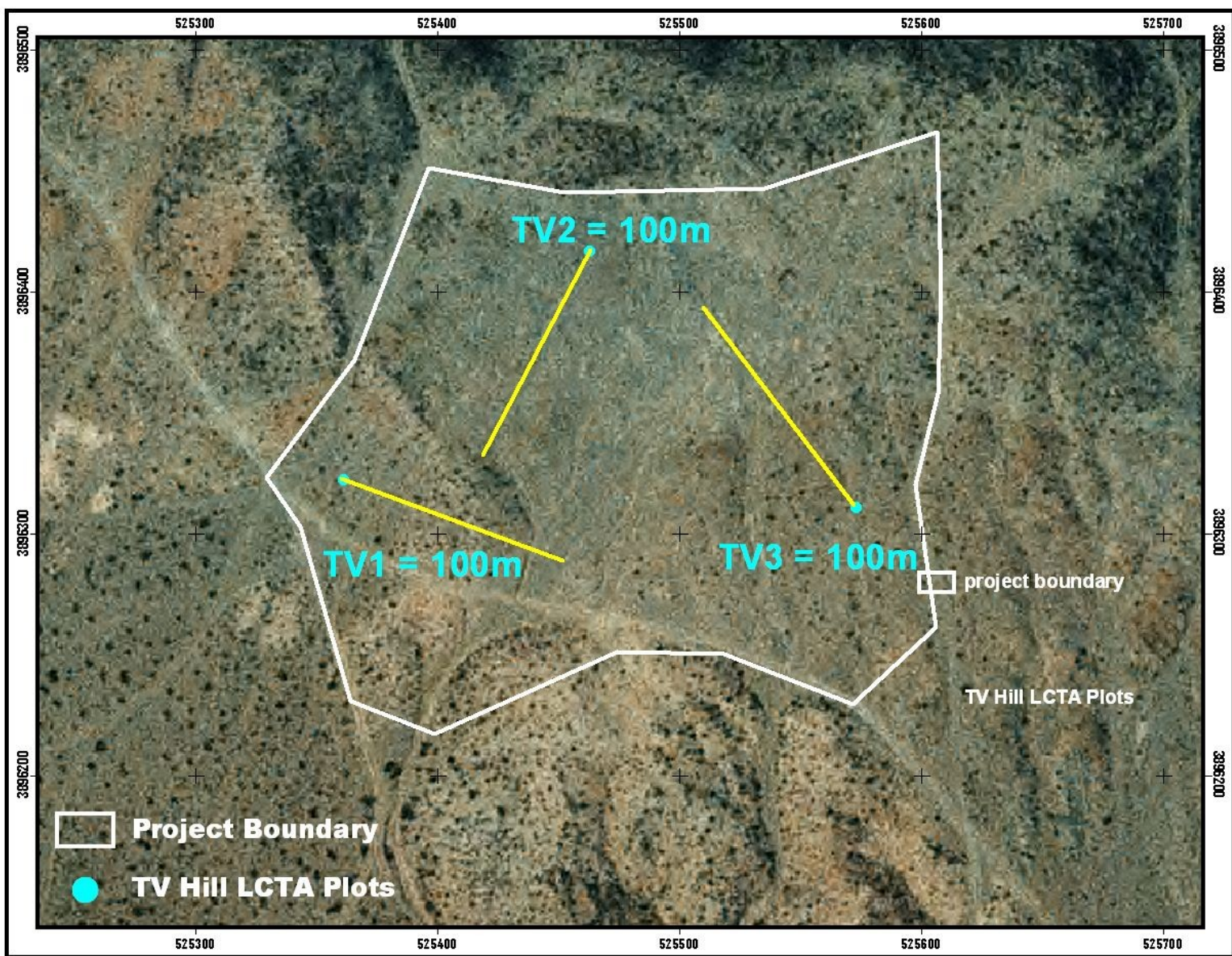
Design data collection format



Bike Lake North																
Date:																
Observer:																
Treatment	ID#	STATUS	ACHY	AMDU	ATCA	ATPO	ENFA	ERFA	HYSA	LATR	LEFR	LYAN	MISS	PRGL	SEAR	
TC	1	LIVE							2	3		2		3	3	
TC	1	DEAD														
TC	2	LIVE							3	3		2		2	2	
TC	3	DEAD														100
VI	1	LIVE	1						1							
VI	1	DEAD		1	1		1		1							
VI	2	LIVE	1		1				1							
VI	2	DEAD		1			1		1							
VI	14	LIVE		1		1	1		1		1					
VI	14	DEAD	1													
VI	15	LIVE				1			1							
VI	15	DEAD	1	1			1		1							
PB	1	LIVE	2	1		2	1		3	2	1					47
PB	1	DEAD								4						
PB	2	LIVE	2			1	2		1	2	1					
PB	2	DEAD		1		1			2	2			1			
PB	3	LIVE	1	2		1	1		3	4	1					
PB	3	DEAD	1							2						
PB	28	LIVE		1	2		1		4	8	1					
PB	28	DEAD														
PB	29	LIVE		1		2	1		4	8	1					
PB	29	DEAD														
PB	30	LIVE		1		2			4	5	1					
PB	30	DEAD								2			2			81
			59	79	84	81	74	78	77	85	100	100	0	100	100	



Locate monitoring transects



GIS in LRAM Project Monitoring

BENEFITS:

- **Confirms that contract requirements were met**
- **Allows documentation of maneuver damage**
- **Offers a reliable way to pass information to a field crew for routine maintenance**
- **Facilitates long-term monitoring of the effectiveness of LRAM methods**
- **Provides historical documentation for new personnel**